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ABSTRACT

As one of a series of curriculum guides for office education programs in Texas, this guide contains five units of instruction in data processing. Each of the units consists of these components: unit outline, performance chart for rating students, notes to the instructor, unit overview (content of unit with illustrations as needed), test, and transparency masters. Teacher and student activities, as well as educational resources, are suggested, and estimated completion time is provided for each unit. Units cover the following topics: data processing concepts and skills, data entry skills, computer operations, programming and languages, and data presentation and storage. In addition, six appendixes contain lists of processing resources, publishers, and professional publications; an occupational curriculum laboratory reference list for data processing; plans for classroom organization; and a data processing training plan. (KC)

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Data Processing

CURRICULUM GUIDE

ED274836

CE045216

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DATA PROCESSING I

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DATA PROCESSING CONCEPTS AND SKILLS

75.90(a)(1) CONCEPTS AND SKILLS RELATED TO GENERAL DATA PROCESSING

(A) Demonstrate comprehension of data processing terms

(B) Understand aspects of input and output

(C) Understand the major components of data processing systems

UNIT OBJECTIVE

The student will be able to demonstrate knowledge of the evolution of the computer industry.

TEACHER ACTIVITIES

1. Prepare lecture using transparencies.
2. Illustrate applications.
3. Discuss the unit objectives so that the students will have an understanding of what is expected of them.
4. Obtain extra materials, if possible, to be shared with students.
5. Refer to Chapter 2, Introduction to Computers and Data Processing, Shelley and Cashman, or any other textbook listed in the resources section.

UNIT OUTLINE

STUDENT ACTIVITIES

1. Identify the development of computer hardware which has led to modern computing devices.
2. Identify the role played by computer hardware in the history of the computing industry.
3. List the important contributions from people in the evolution of the electronic computer industry.
4. Identify the major companies in the computer industry and the contributions they have made.
5. Identify the development of the data processing industry in modern society.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--10 hours
1-hour lab--5 hours

75.90(a)(1)(A)

OBJECTIVE: The student will be able to demonstrate knowledge of the evolution of the computer industry.

	MASTERY	NON MASTERY
1. Identify the development of computer hardware which has led to modern computing devices.		
2. Identify the role played by computer hardware in the history of the computing industry.		
3. List the important contributions from people in the evolution of the electronic computer industry.		
4. Identify the major companies in the computer industry and the contributions they have made.		
5. Identify the development of the data processing industry in modern society.		
Unit Test		

PERFORMANCE CHART

UNIT OBJECTIVE

The student will demonstrate comprehension of skills related to general data processing.

TEACHER ACTIVITIES

1. Obtain brochures, booklets, films, CAI for unit.
2. Design special bulletin board on data processing.
   a. Terms
   b. Computer systems
   c. Software systems
3. Secure experienced personnel from industry to speak on selected topics.
4. Discuss unit objectives so that students will have an understanding of what is expected of them.
5. Discuss each of the various computer types and software systems.
6. Discuss business systems as they apply to current business practices.
7. Refer to Chapter 1, Introduction to Computer and Data Processing, Shelly and Cashman, or any other textbook listed in the resources section.

STUDENT ACTIVITIES

1. State three functional components of data processing hardware.
   a. Identify input device functions.
   b. Identify and describe central processing functions.
   c. Identify output functions.
2. State three types of software systems.
   a. Identify and describe word processing.
   b. Identify and describe data base management.
   c. Identify and describe spread sheet
   d. Special applications (user made programs for payroll, inventory, etc.)
3. State the function of data processing personnel:
   a. Data entry operator
   b. Systems analyst
   c. Programmer
   d. Computer operator
4. Define "compilers" and "interpreters"

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--10 hours
1-hour lab--5 hours

UNIT OUTLINE

75.90(a)(1)(A)

OBJECTIVE: The student will demonstrate comprehension of skills related to general data processing.

	MASTERY	NON MASTERY
1. State three functional components of data processing hardware.		
a. Identify input device functions.		
b. Identify and describe central processing functions.		
c. Identify output functions.		
2. State three types of software systems.		
Unit Test		

PERFORMANCE CHART

UNIT OBJECTIVE

The student will be able to understand concepts of processing and major components of data processing systems.

TEACHER ACTIVITIES

1. Prepare lecture using transparencies.
2. Illustrate example applications.
3. Discuss the unit objectives so that the students will have an understanding of what is expected of them.
4. Obtain extra materials, if possible, to be shared with students.
5. Refer to Chapter 3, Introduction to Computer and Data Processing, Shelly and Cashman, or any other textbook listed in the resources section.
6. Secure the film, "About Computers" from Modern Motion Pictures.

STUDENT ACTIVITIES

1. Identify the steps in the data processing cycle.
   a. Input
   b. Process
   c. Output
2. Identify differences in size, cost, and function of
   a. Microcomputer
   b. Minicomputer
   c. Large scale computers
3. Identify operational capability of a computer system
   a. Input/output
   b. Arithmetic and logical operations
4. Identify the practical applications of computer systems
   a. data storage and retrieve
   b. inquiry
   c. updating
   d. sorting
   e. control break processing
   f. classifying data
   g. selecting data
   h. summarizing data
   i. manipulating data
5. Identify and describe the types of equipment found in a typical computer system.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--10 hours
1-hour lab--5 hours

UNIT OUTLINE

75.90(a)(1)(C)

OBJECTIVE: The student will be able to understand concepts of processing and major components of data processing systems.

	MASTERY	NON MASTERY
1. Identify the steps in the data processing cycle.		
a. Input		
b. Process		
c. Output		
2. Identify differences in size, cost, and function of		
a. Microcomputer		
b. Minicomputer		
c. Large scale computers		
3. Identify operational capability of a computer system		
a. Input/output		
b. Arithmetic and logical operations		
4. Identify the practical applications of computer systems		
a. data storage and retrieve		
b. inquiry		
c. updating		
d. sorting		
e. control break processing		
f. classifying data		
g. selecting data		
h. summarizing data		
i. manipulating data		
5. Identify and describe the types of equipment found in a typical computer system.		
Unit Test		

PERFORMANCE CHART

UNIT OBJECTIVE

The student will be able to understand concept of output.

TEACHER ACTIVITIES

1. Prepare lecture using transparencies.
2. Illustrate applications.
3. Discuss the unit objectives so that the students will have an understanding of what is expected of them.
4. Obtain extra materials, if possible, to be shared with students.
5. Refer to Chapter 6, Introduction to Computers and Data Processing, Shelley and Cashman, or to any other textbook listed in the resources section.

STUDENT ACTIVITIES

1. Identify the types of output available for computer systems.
2. List the types of printers available, their speeds, and their advantages and disadvantages.
3. State the characteristics of cathode ray tube terminals.
4. Demonstrate the use of detail, summary, and exception reports.
5. Identify the use of CRT terminals in transaction-oriented systems for inquiry and the factors to be considered in developing inquiry systems.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--10 hours
1-hour lab--5 hours

75.90(a)(1)(B)

OBJECTIVE: The student will be able to understand concept of output.

	MASTERY	NON MASTERY
1. Identify the types of output available for computer systems.		
2. List the types of printers available, their advantages and disadvantages.		
3. State the characteristics of cathode ray tube terminals.		
4. Demonstrate the use of detail, summary, and exception reports.		
5. Identify the use of CRT terminals in transaction-oriented systems for inquiry and the factors to be considered in developing inquiry systems.		
6. Complete activity sheets in workbook		
Unit Test		

PERFORMANCE CHART

DATA ENTRY SKILLS

75.90(a)(2) CONCEPTS AND SKILLS RELATED TO DATA ENTRY

The student shall be provided opportunities to understand and demonstrate the use of data entry equipment.

UNIT OBJECTIVE

The student will understand concepts of input.

TEACHER ACTIVITIES

1. Prepare lecture using transparencies.
2. Illustrate applications.
3. Discuss the unit objectives so that students will have an understanding of what is expected of them.
4. Obtain extra material, if possible, to be shared with students.
5. Refer to Chapter 5, Introduction to Computers and Data Processing, Shelley and Cashman, or any other textbook in the resources section.

STUDENT ACTIVITIES

1. State the difference between batch processing systems and transaction-oriented processing systems.
2. Identify the use of punched cards, magnetic tape, and magnetic disk as input media for batch processing systems.
3. Identify the difference between dumb and intelligent terminals as input devices for transaction-oriented processing systems.
4. List the processing cycles for batch processing systems and transaction-oriented processing systems.
5. State the need for editing input data prior to processing the data on computer systems.
6. Complete activity sheets in workbook.
7. Develop skills in data entry with equipment available. Possible activities:
   a. Ten-key activities
   b. Microcomputer activities
   c. Word processing
   d. Data base software
   e. Spread sheet
   f. Entry of programs in a computer

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--10 hours
1-hour lab--5 hours

75.90(a)(2)

OBJECTIVE: The student will understand aspects of input.

	MASTERY	NON MASTERY
1. State the difference between batch processing systems and transaction-oriented processing systems.		
2. Identify the use of punched cards, magnetic tape, and magnetic disk as input media for batch processing systems.		
3. Identify the difference between dumb and intelligent terminals as input devices for transaction-oriented processing systems.		
4. List the processing cycles for batch processing systems and transaction-oriented processing systems.		
5. State the need for editing input data prior to processing the data on computer systems.		
6. Complete activity sheets in workbook.		
7. Develop skills in data entry with equipment available. Possible activities:		
a. Ten-key activities		
b. Microcomputer activities		
c. Word processing		
d. Data base software		
e. Spread sheet		
f. Entry of programs in a computer		
Unit Test		

PERFORMANCE CHART

COMPUTER OPERATIONS

75.90(a)(5) CONCEPTS AND SKILLS RELATED TO COMPUTER OPERATIONS

The student shall be provided opportunities to:

(A) Demonstrate the use of computer equipment

(B) Demonstrate the use of job control language

(C) Schedule and process requests to minimize the operational steps and run time

UNIT OBJECTIVE

The student will demonstrate the use of computer equipment.

TEACHER ACTIVITIES

1. Demonstrate operation of computer systems in lab.
2. Discuss the procedures for running computer systems such as JCL.
3. Discuss the terms for data processing and computer installations.

STUDENT ACTIVITIES

1. Identify terms relating to computer equipment.
2. Demonstrate the operation of a computer system.
3. Discuss both the typical and optional features of operating systems that apply to the field of operations.
4. Demonstrate data entry, document control, operating procedures, controls, and form design.
5. Complete activity sheets in workbook.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--30 hours
1-hour lab--20

UNIT OUTLINE

75.90(a)(5)(A)

OBJECTIVE: The student will demonstrate the use of computer equipment.

	MASTERY	NON MASTERY
1. Identify terms relating to computer equipment.		
2. Demonstrate the operation of a computer system.		
3. Discuss both the typical and optional features of operating systems that apply to the field of operations.		
4. Demonstrate data entry, document control, operating procedures, controls, and form design.		
5. Complete activity sheets in workbook.		

PERFORMANCE CHART

PROGRAMMING AND LANGUAGES

75.90(a)(3) CONCEPTS AND SKILLS RELATED TO PROGRAMMING AND LANGUAGES

The student shall be provided opportunities to:

(A) Apply the concepts of logic to programming problems

(B) Translate the applied solution into a common programming language

(C) Demonstrate the ability to debug and audit a solution

UNIT OBJECTIVE

The student will be able to apply logic to programming problems.

TEACHER ACTIVITIES

1. Prepare lecture using transparencies.
2. Illustrate applications.
3. Discuss the unit objectives so that students will have an understanding of what is expected of them.
4. Refer to Chapter 11, Introduction to Computers and Data Processing, Shelley and Cashman, or to any other textbook listed in the resources section.

STUDENT ACTIVITIES

1. Discuss review program specifications.
2. Demonstrate using business algorithms as a program design tool.
3. Demonstrate flowcharting and/or pseudecode as a program design tool.
4. Discuss structured design.
5. Identify three control structures found in structured programming.
6. Develop the logic required to solve problems commonly found in business applications programming.
   a. Input/output operations
   b. Accumulating totals
   c. Comparing
   d. Control breaks
   e. Tables and table searches
   f. Interactive programming
7. Discuss egoless programming and structured walk throughs.
8. Demonstrate program documentation

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--40 hours
1-hour lab--20 hours

75.90(a)(3)(A)

OBJECTIVE: The student will be able to apply logic to programming problems.

PERFORMANCE CHART

	MASTERY	NON MASTERY
1. Discuss review program specifications.		
2. Demonstrate using business algorithms as a program design tool.		
3. Demonstrate flowcharting and/or pseudecode as a program design tool.		
4. Discuss structured design.		
5. Identify three control structures found in structured programming.		
6. Develop the logic required to solve problems commonly found in business applications programming.		
a. Input/output operations		
b. Accumulating totals		
c. Comparing		
d. Control breaks		
e. Tables and table searches		
f. Interactive programming		
7. Discuss egoless programming and structured walk throughs.		
8. Demonstrate program documentation		
Unit Test		

UNIT OBJECTIVE

The student will be able to translate the applied solution into a common programming language.

TEACHER ACTIVITIES

1. Discuss unit objectives so that students will have an understanding of what is expected of them.
2. Discuss each of the various statement formats and stress the importance of developing correct techniques in writing code.
3. Obtain various examples of applied solutions in the common programming languages.

UNIT OUTLINE

STUDENT ACTIVITIES

Code in one of the common programming languages.

a. BASIC
b. COBOL
c. FORTRAN
d. RPG
e. PASCAL

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--120-135 hours
1-hour lab-- 70- 90 hours

75.90(a)(3)(B)
75.90(a)(5)(B)

OBJECTIVE: The student will be able to translate the applied solution into a common programming language.

	MASTERY	NON MASTERY
Code in one of the common programming languages.		
a. BASIC		
b. COBOL		
c. FORTRAN		
d. RPG		
e. PASCAL		
Unit Test		

PERFORMANCE CHART

UNIT OBJECTIVE

The student will be able to debug and validate a solution.

TEACHER ACTIVITIES

1. Obtain examples of program with errors.
2. Discuss the unit objectives so that students will have a complete understanding of the objectives expected of them.
3. Discuss and define "syntax" errors with computer programs.
4. Discuss each of the various programming techniques to avoid the logic error in advance.

UNIT OUTLINE

STUDENT ACTIVITIES

1. Differentiate between syntax and logic errors.
2. Discuss differences in error messages generated by compilers and interpreters.
3. Demonstrate program "testing procedures."
4. Demonstrate means of editing on systems being used.
5. Validate output of program.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--40 hours
1-hour lab--15 hours

75.90(a)(3)(C)

OBJECTIVE: The student will be able to debug and validate a solution.

PERFORMANCE CHART

	MASTERY	NON MASTERY
1. Differentiate between syntax and logic errors.		
2. Discuss differences in error messages generated by compilers and interpreters.		
3. Demonstrate program "testing procedures."		
4. Demonstrate means of editing on systems being used.		
5. Validate output of program.		
Unit Test 27		

DATA REPRESENTATION AND STORAGE

75.90(a)(4) CONCEPTS AND SKILLS RELATED TO DATA REPRESENTATION AND STORAGE

The student shall be provided opportunities to:

(A) Demonstrate knowledge of computer numbering systems, data codes, and basic concepts of data storage

(B) Establish random and sequential file structures

UNIT OBJECTIVE

The student will be able to demonstrate knowledge of computer numbering systems, data types, and basic concepts of data storage.

TEACHER ACTIVITIES

1. Prepare lecture with transparencies.
2. Secure films.
3. Prepare student handout sheets and exercises.
4. Refer to Chapter 4 and Appendix in Introduction to Computer and Data Processing, Shelley and Cashman, or any other textbook listed in the resources section.

STUDENT ACTIVITIES

1. Identify fields, records, files.
2. State how data is stored in main computer storage and on input/output devices.
    a. Identify the EBCDIC coding scheme.
    b. Identify schemes for computer storage.
    c. Identify the Hollerith card code.
    d. Identify tape code.
3. Display an understanding of alpha, numeric, alphanumeric, and special character fields.
4. Display an understanding of representing numbers by means of integer, floating point.
5. State the difference between variable word length machines and fixed word length machines.
6. Activities with other numbering systems
    a. Conversion from decimal to
        1) binary
        2) octal
        3) hexadecimal
    b. Convert to decimal from
        1) binary
        2) octal
        3) hexadecimal
    d. Perform addition and subtraction in
        1) binary
        2) octal
        3) hexadecimal
7. Build and save data.
8. Transfer data from one device to another.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--30 hours
1-hour lab--10 hours

UNIT OUTLINE

75.90(a)(4)(A)

OBJECTIVE: The student will be able to demonstrate knowledge of computer numbering systems, data types, and basic concepts of data storage.

	MASTERY	NON MASTERY
1. Identify fields, records, files.		
2. State how data is stored in main computer storage and on input/output devices.		
a. Identify the EBCDIC coding scheme.		
b. Identify schemes for computer storage.		
c. Identify the Hollerich card code.		
d. Identify tape code.		
3. Display an understanding of alpha, numeric, alphanumeric, and special character fields.		
4. Display an understanding of representing numbers by means of integer, floating point.		
5. State the difference between variable word length machines and fixed word length machines.		
6. Activities with other numbering systems		
a. Conversion from decimal to		
1) binary 2) octal 3) hexadecimal		
b. Convert to decimal from		
1) binary 2) octal 3) hexadecimal		
c. Perform addition and subtraction in		
1) binary 2) octal 3) hexadecimal		
7. Build and save data.		
8. Transfer data from one device to another.		
Unit Test		

PERFORMANCE CHART

UNIT OBJECTIVE

The student will be able to establish sequential file structures.

TEACHER ACTIVITIES

1. Prepare student handouts.
2. Demonstrate lab exercises.

STUDENT ACTIVITIES

1. Build and/or develop data files and store/save files on disc, tape.
2. Write and load a program that will load a sequential file from an input device to an output device.

EVALUATION--Unit Test

ESTIMATED COMPLETION TIME--2-hour lab--30 hours
1-hour lab--10 hours

75.90(a)(4)(B)
75.90(a)(5)(C)

OBJECTIVE: The student will be able to establish sequential file structures.

	MASTERY	NON MASTERY
1. Build and/or develop data files and store/save files on disc, tape.		
2. Write and load a program that will load a sequential file from an input device to an output device.		
Unit Test		

PERFORMANCE CHART

DATA PROCESSING APPENDICES

Appendix A - Data Processing Resource List

Appendix B - List of Publishers

Appendix C - Professional Publications

Appendix D - Occupational Curriculum Laboratory Reference List for Data Processing

Appendix E - Classroom Organization

Appendix F - Data Processing Training Plan

APPENDIX A

DATA PROCESSING RESOURCE LIST

APPLE COMPUTER SUPPLEMENT
Anaheim Publishing Co., Inc.

APPLESOFT BASIC FUNDAMENTALS AND STYLE
Boyd & Fraser Publishing Co.

APPLEWORKS--INTEGRATED APPLICATIONS FOR MICROCOMPUTERS
Southwestern Publishing Co.

AUTOMATED ACCOUNTING FOR THE MICROCOMPUTER
Southwestern Publishing Co.

COMPUTERS AND INFORMATION PROCESSING
Charles E. Merrill Publishing Co.

COMPUTER CONCEPTS
Bobbs-Merrill Educational Publishing

COMPUTER FUNAMENTALS FOR AN INFORMATION AGE
Anaheim Publishing Co., Inc.

COMPUTER LAB SOFTWARE PROJECTS DISKETTE
Anaheim Publishing Co., Inc.

CONCEPTS OF DATA PROCESSING
MPC Educational Publishing Co.

DATA PROCESSING, VOLUME 1
Occupational Curriculum Laboratory, ETSU

DATA PROCESSING, Volume 1 & 2
University of Missouri/Columbia

DATA PROCESSING WORK KIT
Gregg/McGraw-Hill Publishing Co.

FILMSTRIP/BUSINESS EDUCATION CONCEPTS OF DATA PROCESSING
Bobbs-Merrill Educational Publishing

FUNDAMENTALS OF DATA PROCESSING
Southwestern Publishing Co.

INTRODUCTION TO AUTOMATED DATA PROCESSING SOUND FILMSTRIPS
Southwestern Publishing Co.

INTRODUCTION TO BASIC PROGRAMMING WORKBOOK AND STUDY GUIDE
Anaheim Publishing Co., Inc.

INTRODUCTION TO COMPUTERS AND DATA PROCESSING
Anaheim Publishing Co., Inc.

INTRODUCTION TO COMPUTERS AND DATA PROCESSING
Prentice Hall

INTRODUCTION TO DATA PROCESSING
Gregg/McGraw-Hill Publishing Co.

INTRODUCTION TO DATA PROCESSING
Southwestern Publishing Co.

INTRODUCTION TO DATA PROCESSING
University of Missouri/Columbia

KEYPUNCH KIT AND KEYPUNCH TEXT AND TEACHER'S MANUAL
Bobbs-Merrill Educational Publishing Co.

LEARNING COMPUTER PROGRAMMING
Boys & Fraser Publishing Co.

MICROCOMPUTER APPLICATIONS FOR THE DATA PROCESSING WORK KIT
Gregg/McGraw-Hill Publishing Co.

MICROCOMPUTER SIMULATIONS IN BUSINESS
Southwestern Publishing Co.

MICROCOMPUTERS: HARDWARE, SOFTWARE AND PROGRAMMING
Bobbs-Merrill Educational Publishing Co.

OCCUPATIONAL VOCATIONAL CAREER COMPUTERS: INTRODUCTION TO DATA PROCESSING
Southwestern Publishing Co.

SKILLS BUILDING EXERCISES FOR THE WORD PROCESSOR
Dictation Disc Co.

SPREAD SHEETS SKILLS BUILDING EXERCISES AND APPLICATIONS
Dictation Disc Co.

STRUCTURING BASIC PROGRAMS: MICROSOFT BASIC ON MICROCOMPUTERS
Boyd & Fraser Publishing Co.

STUDENT WORKBOOK AND STUDY GUIDE
Anaheim Publishing Co., Inc.

TRANSPARENCIES FOR INTRODUCTION TO DATA PROCESSING
Southwestern Publishing Co.

USING COMPUTERS
Boyd & Fraser Publishing Co.

VAX FORTRAN
Boyd & Fraser Publishing Co.

VIDEO GALLERY SALES AND SERVICES
Southwestern Publishing Co.

WATFIV-S FUNDAMENTALS AND STYLE
Boyd & Fraser Publishing Co.

WORKBOOK AND STUDY GUIDE WITH COMPUTER LAB SOFTWARE PROJECTS
Anaheim Publishing Co., Inc.

YOU ARE A DATA PROCESSOR
Southwestern Publishing Co.

BOYD & FRASER PUBLISHING COMPANY
Statler Office Building
20 Park Plaza
Boston, MA 02116

APPENDIX B

List of Publishers

ADDISON-WESLEY PUBLISHING CO., INC.
Reading, MA 01867

ALLYN & BACON
College Division
Rockleigh, NJ 07647

AMERICAN BANKERS ASSN.
1120 Connecticut Ave. NW
Washington, DC 20036

ANAHEIM PUBLISHING CO.
2632 Saturn Street
Brea, CA 92621

ARCO PUBLISHING, INC.
Educational Division
215 Park Avenue South
New York, NY 10003

AVA RESOURCES
2020 N. 14th Street
Arlington, VA 22201

BANTAM BOOKS
666 Fifth Avenue
New York, NY 10103

BOBBS-MERRILL EDUCATIONAL PUBLISHERS
P.O. Box 7080
Indianapolis, IN 46206

ROBERT J. BRADY, CO.
A Prentice-Hall Co.
Bowie, MD 20715

BROOKS/COLE PUBLISHING CO.
540 Abrego Street
Monterey, CA 93940

WILLIAM C BROWN PUBLISHING
2460 Kerper Blvd
Dubuque, IA 52001

CAREER AIDS, INC.
20417 Nordhoff St.
Dept K 65
Chatsworth, CA 91311

CBS COLLEGE PUBLISHING
383 Madison Avenue
New York, NY 10017

CHILTON BOOK COMPANY
School and Library Dept.
Chilton Book Company
Radnor, PN 19089

CHRONICLE GUIDANCE PUB. INC.
Aurora Street Extension
P.O. Box 1190
Moravia, NY 13118-1190

COLLEGE BOARD PUBLICATIONS
The College Board
888 Seventh Ave.
New York, NY 10106

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135 West 50th Street
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Lavallette, NJ 08735

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San Diego, CA 92107

EDUCATIONAL FILMSTRIPS
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Huntsville, TX 77340

GLENCOE PUBLISHING CO.
8301 Ambassador Row
Dallas, TX 75247

GLENCOE PUBLISHING CO.
17337 Ventura Blvd.
Encino, CA 91316

GREGG/MCGRAW HILL
13955 Manchester Road
Manchester, MO 63011

GREGG DIVISION
McGraw-Hill Book Co.
1221 Avenue of the Americas
New York, NY 10020

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CHARLES E. MERRILL PUB. CO.
1200 Alum Creek Drive
Columbus, OH 43216

MILLIKEN PUBLISHING CO.
Box 21579
St. Louis, MO 63132

NATIONAL OCCUPATIONAL CO.
TESTING INSTITUTE
318 Johnson Hall
Ferris State College
Big Rapids, MI

NATIONAL PUBLIC RADIO
Cassette Catalog
Cassette Publishing
2025 M Street N.W.
Washington, DC 20036

NATIONAL TEXTBOOK CO.
4255 West Touhy Avenue
Lincolnwood, IL 60646-1975

OHIO STATE UNIVERSITY
Vocational Instructional
Materials Laboratory
154 W. Twelfth Ave.
Columbus, OH 43210-1302

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9219 Chimney Corner
Dallas, TX 75243

PRENTICE-HALL INC.
Englewood Cliffs, NJ 07632

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Tarrytown, NY 10591

RADIO SHACK
EDUCATION DIVISION
1400 One Tandy Center
Ft. Worth,TX 76102-2805

RANDOM HOUSE SCHOOL DIV.
Dept. 9232
400 Hahn Road
Westminister, MD 21157

REAL ESTATE EDUCATION CO.
500 N. Dearborn Street
Chicago, IL 60610

REAL ESTATE PRESS
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Parktown, MA 21120

RESTON PUBLISHING CO.
A Prentice-Hall Co.
11480 Sunset Hills Road
Reston, VA 22090

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Baltimore, MD 21217

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College & Vocational Studies
155 N. Wacker Drive
Chicago, IL 60606

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Alexandria, LA 71306

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5101 Madison Road
Cincinnati, OH 45227

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Blue Ridge
Summit, PA 17214

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Austin, TX 78761

TEACHING AIDS INCORP.
Post Office Box 1798
Costa Mesa, CA 92628-0798

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OF VOCATIONAL AND TECHNICAL
EDUCATION
1515 West Sixth Avenue
Stillwater, OK 74074

V TECS - COMMISSION ON
EDUCATION INSTITUTIONS
Southern Assn. of Colleges
and Schools
795 Peachtree Street
N.E. Atlanta, GA 30365

WADSWORTH
7625 Impire Drive
Florence, KY 41042

WEST PUBLISHING CO.
50 Kellogg Blvd.
St. Paul, MN 55102

WESTERN TAPE
2761 Marine Way
Mountain View, CA 94040

J. WESTON WALCH, PUB.
P.O. Box 658
Portland, MA 04104-0658

JOHN WILEY & SONS, INC.
605 Third Avenue
New York, NY 10158

APPENDIX C

Business Journals

Business Education Journal
Emporia State University
Division of Business and Business Education
1200 Commercial St.
Emporia, KS 66801
The journal contains general business topics with emphasis on business production and teacher education.

Business Education World
Gregg Division
McGraw-Hill Book Company
1221 Avenue of the Americas
New York, NY 10020
Innovative application of teaching methodology, educational concepts, descriptions of new curricula and trends all in business and office education subjects. Free to business teachers.

Business Educational Forum
National Business Education Assn
1914 Association Drive
Reston, VA 22091
The journal features articles for teachers of secretarial programs, typewriting, accounting, clerical programs, basic business, as well as economics, marketing and distribution, communications, and data processing.

Business Horizons
Graduate School of Business
Indiana University
Bloomington, IN 47405
Articles by academics and business people on significant business issues, trends, and research projects.

Delta Pi Epsilon Journal
Delta Pi Epsilon National Office
Gustovus Adolphus College
St. Peter, MN 56082
Devoted to research articles dealing with theory, practice, and research in business education.

Journal of Business Education
Heldref Publications
4000 Albemarle St. NW
Washington, DC 20016
A journal dealing with business education from high school to community college level. Contributors are principally teachers and academics.

VOCED
formerly American Vocational Journal
2020 N. 14th Street
Arlington, VA 22201
The journal of the American Vocational Association published for teachers, administrators, counselors, and laypersons involved in the task of preparing people for work. The journal gives a balanced view of both the theoretical and practical aspects of vocational education.

Newsletters

The Office Professional
1316 Sam Bass Circle
Round Rock, TX 78664
Provides reliable information about office systems and procedures, secretarial methods, management thinking, and office technology. Also features articles on communication techniques, professional human relation skills, and the latest approaches to career development.

Open Entries
The Center for Studies in Vocational Education
Florida State University
Stone Building
Tallahassee, FL 32306
A nationwide communication link for educators involved in competency-based vocational education that encourages exchange of information on competency-based learning materials, development of new guides, packets, audiovisual materials and computer-based resources.

APPENDIX D

REFERENCE LIST FOR
BUSINESS DATA PROCESSING AND RELATED PROGRAMS

The Occupational Curriculum Laboratory offers a variety of materials to provide aid in the teaching of data processing. This material was designed to familiarize students with the various types of data processing equipment and programming languages. This outline has a two-fold purpose: (1) to offer you, the teacher, a suggested outline for teaching students who are preparing for careers in the data processing field, and (2) to provide you, the teacher, with a reference of curriculum available through the Occupational Curriculum Laboratory. This outline and the materials suggested are to be used only as a guide for you to use in adapting your program to the particular needs of your students.

I. Data Processing Equipment

A. INTRODUCTION TO DATA PROCESSING*

1. Unit I — History and Evolution of Data Processing
2. Unit II — Information Processing
3. Unit III — Input/Output Media and Devices
4. Unit IV — Processing and Primary Storage
5. Unit V — Secondary (Peripheral) Storage and File Concepts
6. Unit VI — Data Representation and Storage Concepts
7. Unit VIII — Trends in Data Processing

B. DATA PROCESSING VOLUME I*

1. Unit I — Background and Uses of Data Processing
2. Unit II — Input/Output Devices and Media
3. Unit III — Data Entry and Manual Accounting
4. Unit IV — The Central Processing Unit
5. Unit V — Introduction to Control Systems

C. INFORMATION PROCESSING*

1. Unit I — Introduction to Information Processing
2. Unit II — History
3. Unit III — Basic Components of an Information System
4. Unit IV — Data Representation/Number System
5. Unit V — Input/Output Devices and Their Media
6. Unit VI — Methods of Storing and Retrieving Information
7. Unit VIII — Information Processing Systems
8. Unit X — Information Processing The Present and the Future

D. INTRODUCTION TO WORD PROCESSING*

1. Unit II — Word Processing Equipment
2. Unit IV — Microcomputers

II. Programming Activities

A. INTRODUCTION TO DATA PROCESSING*

1. Unit VII — Programming Concepts and Languages

B. DATA PROCESSING VOLUME I*

1. Unit VI — Program Planning
2. Unit VII — Basic Programming
3. Unit VIII — RPG Computer Programming
4. Unit IX — Cobol Programming

C. INFORMATION PROCESSING*

1. Unit VII Understanding Programming Concepts and Computer Language

III. Systems Procedures

A. INTRODUCTION TO DATA PROCESSING*

1. Unit II Information Processing Today
2. Unit IV Processing and Primary Storage
3. Unit V Secondary (Peripheral) Storage and File Concepts
4. Unit VI Data Representation and Storage Concepts

B. INFORMATION PROCESSING*

1. Unit VI Methods of Storing and Retrieving Information

IV. Clerical Activities

A. GENERAL CLERICAL DUTIES AND RELATED INFORMATION*

1. Unit II Human Relations
2. Unit V Selecting and Purchasing Supplies
3. Unit VII Following Company Policies and Procedures

B. COMMUNICATIONS*

1. Unit I Telephone Techniques

C. OFFICE MACHINES*

1. Unit I Operating the Ten-Key Adding Machine
2. Unit II Operating the Electronic Calculator

D. CLERK TYPIST*

1. Section A Typing
2. Section C Recording Information
3. Section E Telephone
4. SEction F Computing Amounts by Machines

V. Job-Related Activities

A. GENERAL CLERICAL DUTIES AND RELATED INFORMATION*

1. Unit I Orientation to Vocational Education
2. Unit II Human Relations
3. Unit III Personal Development
4. Unit IV Job Application Process
5. Unit VI Planning and Organizing Work Activities
6. Unit VII Following Company Policies and Procedures

B. INFORMATION PROCESSING*

1. Unit IX Careers in Information Processing

C. DATA PROCESSING VOLUME I*

1. Unit X Careers in Data Processing

D. BANKING AND SAVINGS AND LOAN*

1. Section A Unit I Human Relations andSelf-improvement
2. Section A Unit II Relationships with Other People
3. Section A Unit III Coping with Problems

*Available from Occupational Curriculum Laboratory
East Texas State University
Commerce, TX 75428
(214) 886-5916

APPENDIX E

A large number of resource materials may be easily acquired for use in the Office Education classroom. However, materials lose their value unless they are readily accessible. In organizing the OE classroom, the teacher should select systems that arrange resources in efficient, attractive ways. The organization and decoration of the classroom should express the message: "OE is important and exciting." The following sections provide hints and suggestions for organizing the classroom and developing a filing system.

Physical Arrangement

The classroom should be arranged as similarly to an office atmosphere as feasible. To achieve this look, cluster students' secretarial desks to provide for a receptionist and office manager area. In addition, a teacher's desk, filing cabinets, bulletin board, chalkboard, and storage for instructional materials, supplies, and teaching aids should be provided.

Equipment, supplies, and instructional resource materials should be arranged and stored so that they are easily accessible to the teacher and students. The equipment and work areas may vary according to the size of the classroom and the individual needs of each teacher.

Filing System

An efficient filing system can be the "backbone" of any teacher. Materials should be filed so that they can be easily located by the teacher or students. A filing system can reduce classroom clutter, promote efficient use of time, and promote safe storage habits.

Use sturdy file cabinets and store the following materials in labeled folders:

. . . Instructional Materials

- Transparency masters
- Duplicated activity sheets
- Answer sheets

. . . Individual Student Folders

- Personal information
- Permission slips
- Progress charts

. . . General Records

- Inventory lists

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. Requisitions

. Follow-up records

. Grade sheets

. Travel forms

. Correspondence

. Resource and reference materials lists

. Miscellaneous

Student Records

To assist the teacher in completing forms and keeping up with past and present students, files should be maintained on each student. The student competency profile is a quick and easy reference.

These profiles are printed on file-type folders designed for individual student use. The front of the profile should be completed by the student at the beginning of the year. Inside the profile, specific job competencies for particular office education areas are listed.

Classroom Policies and Procedures

In establishing classroom policies and procedures, establish only rules you intend to enforce. Make these rules positive instead of negative. For example:

. . . Negative: Do not sit on desks or tables at any time.

. . . Positive: You may sit only on the chairs provided for you.

Be sure that school policies are included. Keep policies and procedures to a minimum. Below is a sample of policies and procedures for classroom management:

1. Attendance--Attendance is a must for all OE students. Frequent absenteeism is regarded by employers as a reason for dismissal. Should you be sick, you must call in sick.

2. Tardiness--Promptness to OE class is expected as it establishes good work habits for the office worker.

3. Attitudes and Work Habits--Your attitude toward work assignments, suggestions from the instructor and relations with other students in the classroom are indications of your ability to succeed on the job or adapt to the world of business. It is necessary to exhibit healthy, cheerful attitudes and responsible work habits during all class sessions. Each six-week period will include a grade for attitude and work habits, as they are so vitally important to your training in OE.

4. Equipment and supplies--The equipment and furnishings of your classroom are expensive and must be properly maintained in order for the program to continue to exist. You are responsible for the work area and the machines at your desk. Leave your work area clean each day--put all trash in the containers provided, replace any reference books you have used, and put your chair under your desk when you leave. A part of your attitude and work habits grade will be based on how well you care for equipment and supplies.

5. Student Supplies--You will need to furnish your own typing erasers, typing paper, notebook binders (the official OEA notebook), and any other incidental items deemed necessary by your instructor.

6. Office Manager--Every three weeks, a student will be assigned the job of office manager as a part of his/her training. The office manager's responsibilities are checking attendance, keeping account of supplies and reordering when shortages occur, checking work areas of all students at the end of each class period, and assisting the instructor with paper work. The office manager will assign to students work requested by other persons. Students in general will be evaluated on their ability to cooperate with the office manager and comply with his/her requests. The office manager will receive credit for carrying out this responsibility. An assistant or alternate will be assigned to perform these duties in the absense of the office manager. Any malfunction of a machine or any supply request should be reported to the office manager.

7. Receptionist--A receptionist will be appointed from each class to serve for three weeks. Duties include answering the telephone, handling office callers, referring outside work to the office manager, and doing specific jobs in indexing, filing, and typing for the OE instructor. The receptionist may also be responsible for the bulletin board. When not involved in receptionist duties listed above, the receptionist is expected to work on an assignment.

APPENDIX F

The essential elements common to all vocational programs and **Data Processing** as described in the State Board of Education Rules for Curriculum shall be a part of the cooperative student's curriculum.

The specific occupational essential elements listed below are provided as a convenience to assure the required minimum training is made available. Additional space is available to add specific individual training opportunities not identified as an essential element. NOTE: Occupational training objectives having no identified essential elements will require the training plans to be totally individually developed.

Required Essential Elements	To Be Done: On the job	To Be Done: Related Class	Related Study Assignment
Leadership concepts and skills Identify characteristics and responsibilities of leaders and effective group members Participate in orderly meetings conducted according to parliamentary procedure Function effectively on committees Plan and conduct leadership activities Prepare for effective citizenship and participation in our democratic society			**Job Related Activities** ____Leadership ____Job Application ____Entrepreneurship
Concepts and skills related to successful employment Develop an awareness of employment opportunities in chosen field Practice correct procedures for job application and interview Develop the ability to take and follow both oral and written directions Practice punctuality and dependability Observe rules and standards of the work place Demonstrate an ability to work with others harmoniously Develop responsibility and the ability to follow through on assigned tasks Exhibit productive work habits and attitudes			**Data Processing Equipment** ____History and Evolution of Data Processing ____Information Processing ____Input/Output Media and Devices ____Processing and Primary Storage ____Secondary (Peripheral) Storage and Files Concepts ____Data Representation and Storage Concepts ____Trends in Data Processing ____Background and Uses of Data Processing ____Data Entry and Manual Accounting ____The Central Processing Unit ____Introduction to Control Systems
Concepts and skills associated with entrepreneurship Recognize opportunities and options for business ownership Identify entry-level procedures, planning processes, and terms needed to open a business Develop an understanding of the role of small business in the free enterprise system			**Programming Activities** ____Programming Concepts and Languages ____BASIC ____RPG ____COBOL ____Understanding Programming Concepts and Computer Language ____FORTRAN
Concepts and skills related to general data processing Demonstrate comprehension of data processing terms Understand aspects of input and output Understand the major components of data processing systems			**Systems Procedures** ____Processing and Primary Storage ____Secondary (Peripheral) Storage and File Concepts ____Data Representation and Storage Concepts
Concepts and skills related to data entry Understand and demonstrate the use of data entry equipment			
Concepts and skills related to programming and languages Apply the concepts of logic to programming problems Translate the applied solution into a common programming language Demonstrate the ability to debug and audit a solution			
Concepts and skills related to data representation and storage Demonstrate knowledge of computer numbering systems, data codes, and basic concepts of data storage Establish random and sequential file structures			
Concepts and skills related to computer operations Demonstrate the use of computer equipment Demonstrate the use of job control language Schedule and process requests to minimize the operational steps and run time			
Additional Occupational Experiences			

Additional Occupational Experiences	To Be Done		Related Study Assignment
	On the job	Related Class	